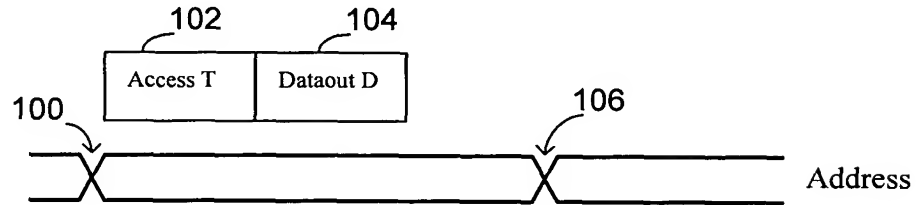


Prior art: READ and WRITE cycles

READ access cycle = $T + D$.



WRITE access cycle = $D + T$.

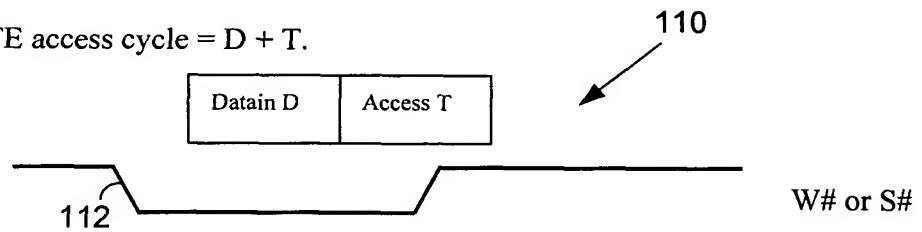


FIG. 1A
PRIOR ART

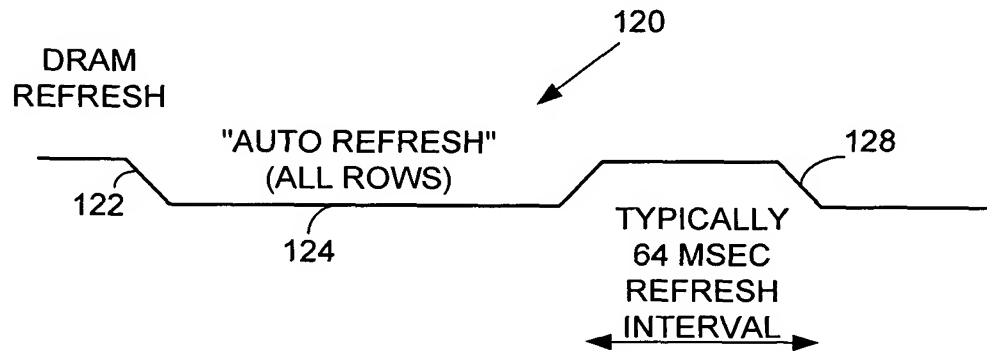


FIG. 1B
PRIOR ART

READ access cycle = T + T + D:

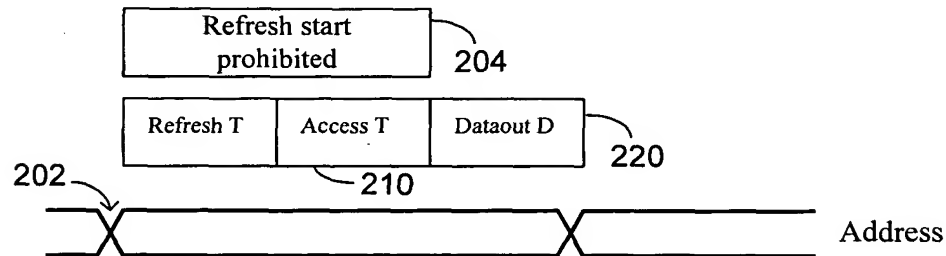


FIG. 2A

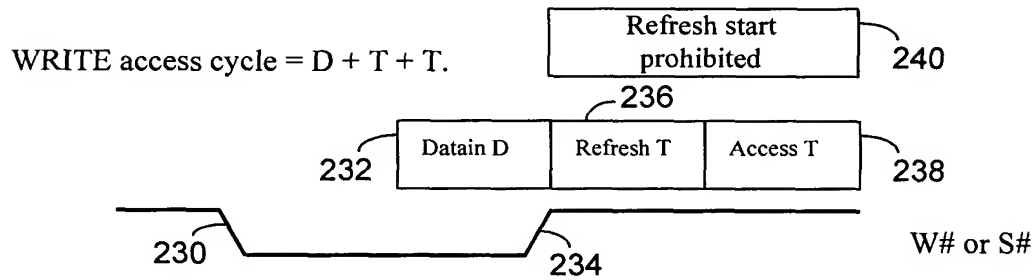


FIG. 2B

Invalid READ, termination during “dataout”

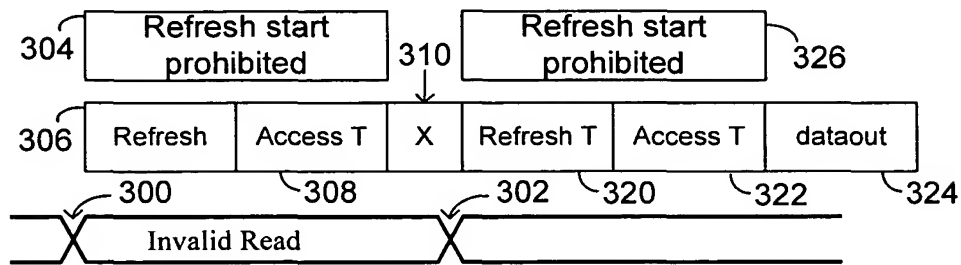


FIG. 3A

Invalid READ, termination during “access”

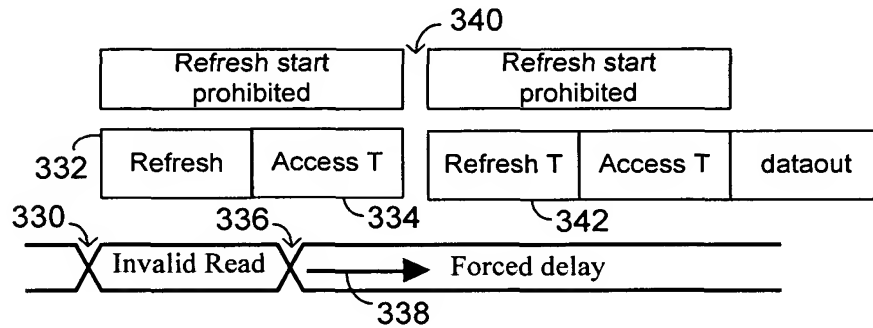


FIG. 3B

Invalid READ, termination during “refresh”

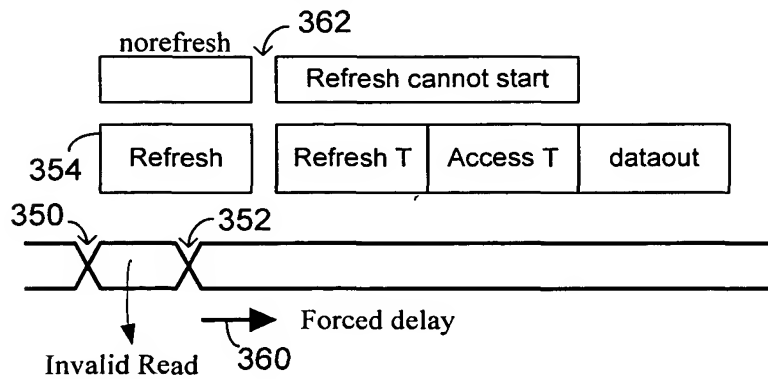


FIG. 3C

READ access following a WRITE:

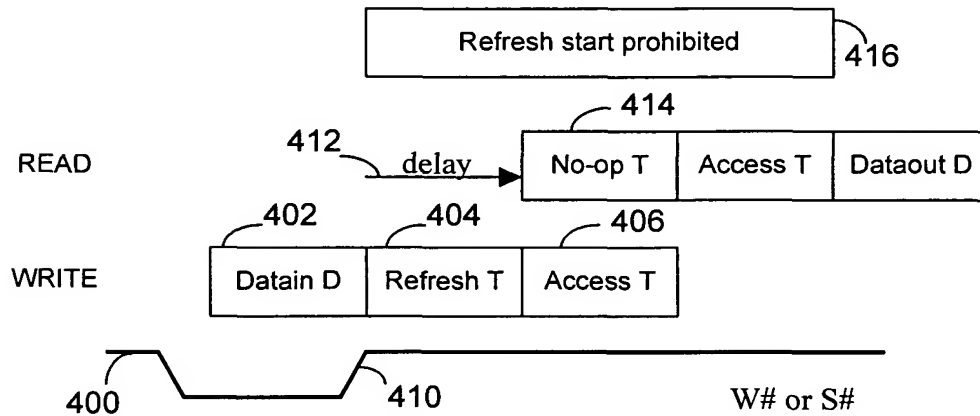


FIG. 4A

Low frequency READ, refresh operation can be inserted between "access" and "dataout"

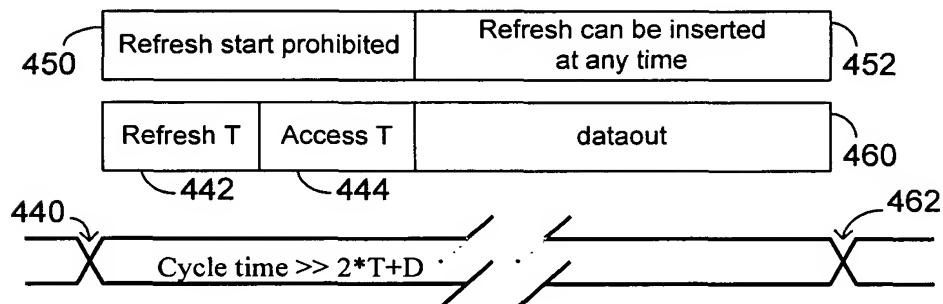
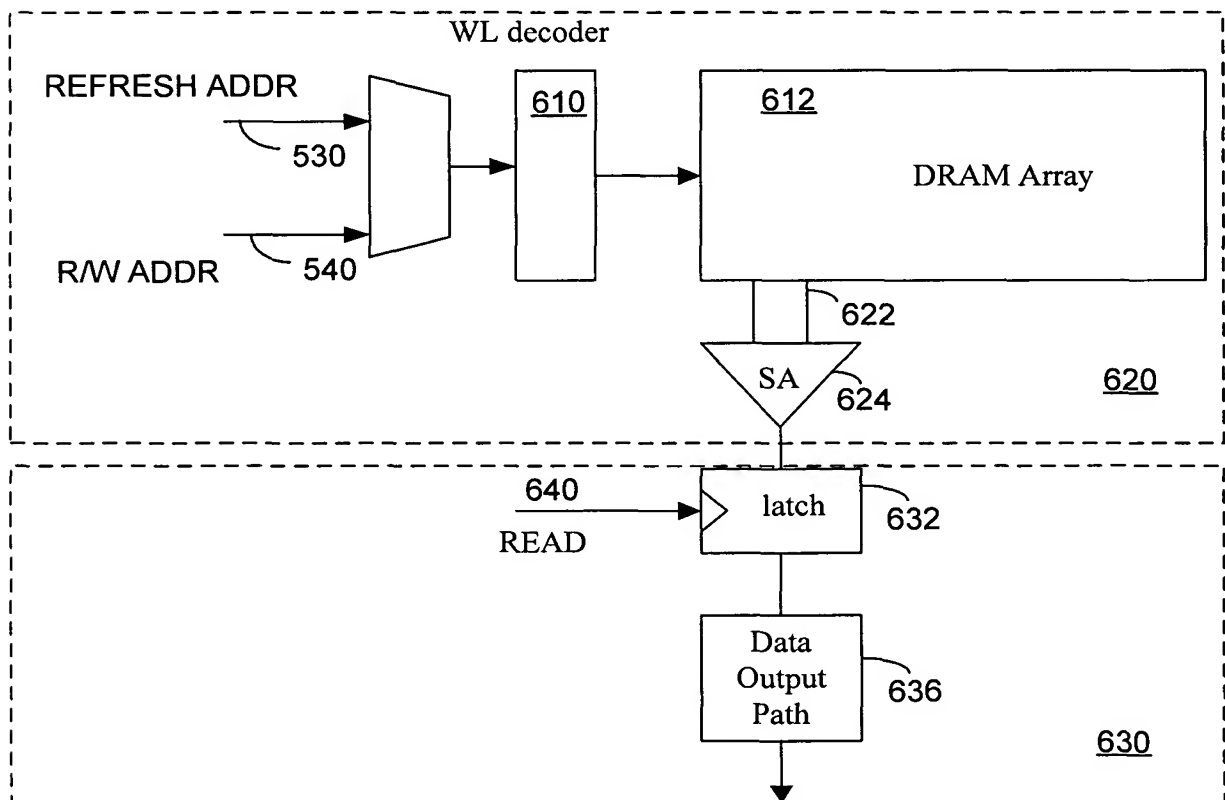
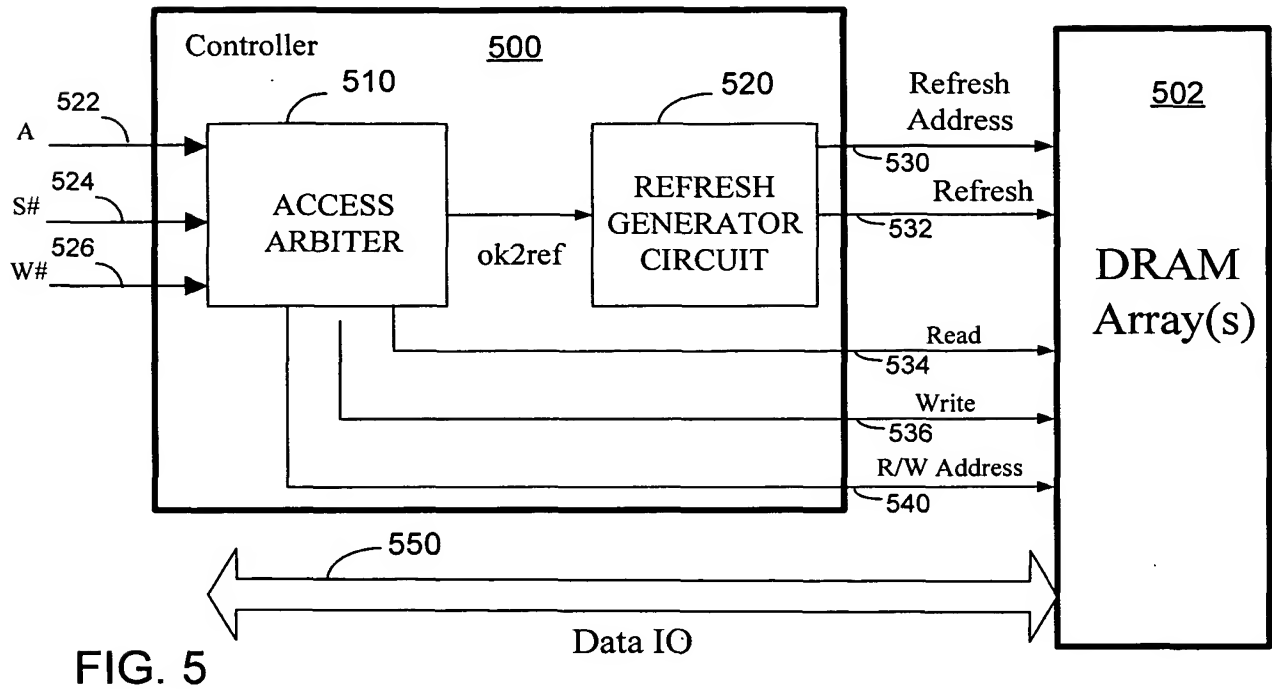


FIG. 4B



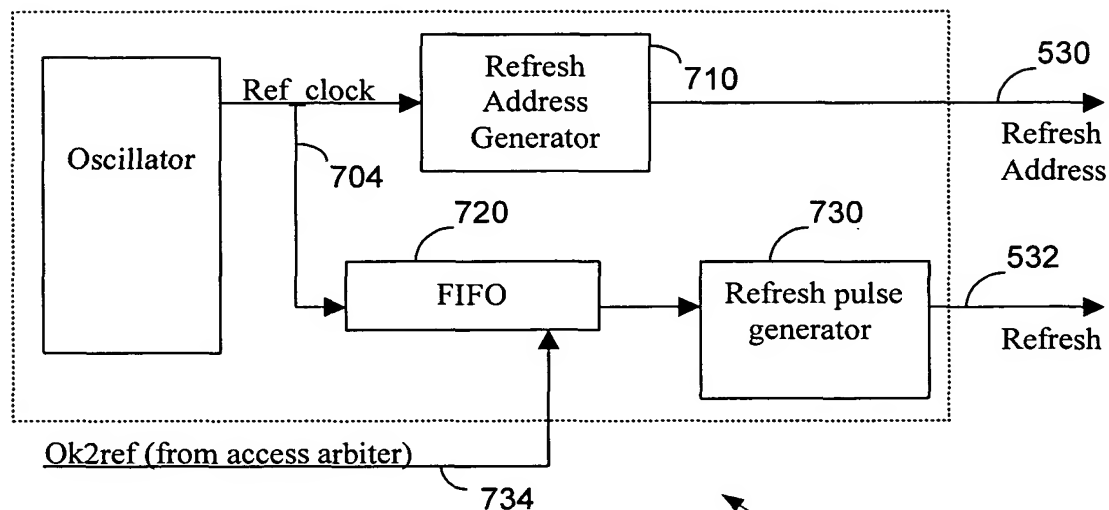


FIG. 7A

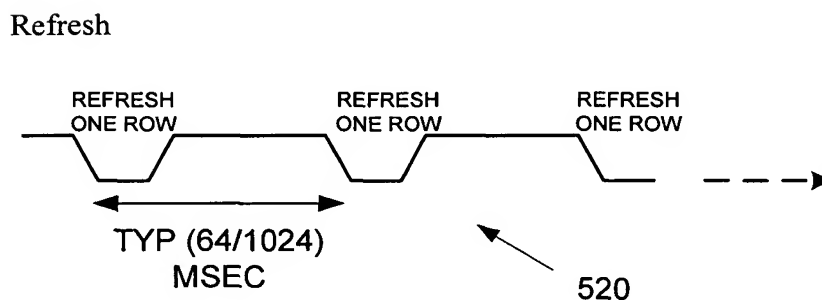
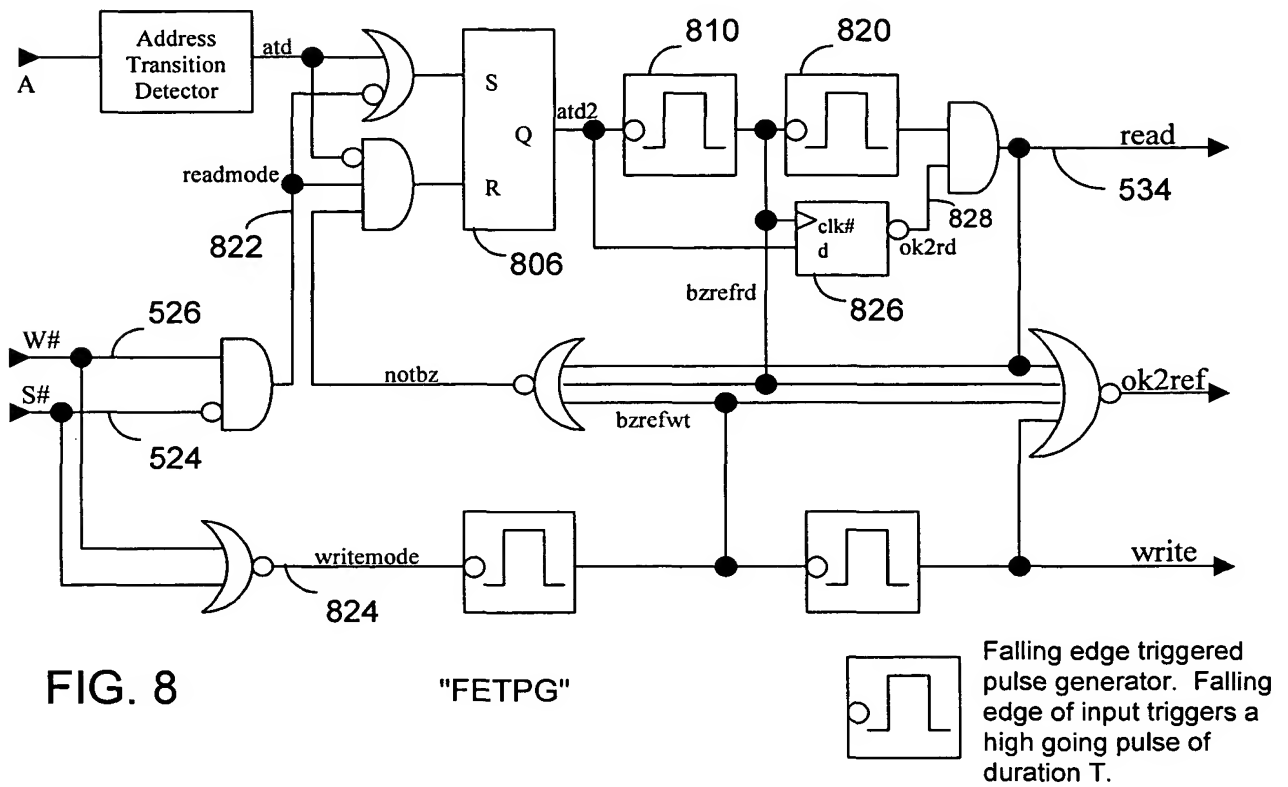
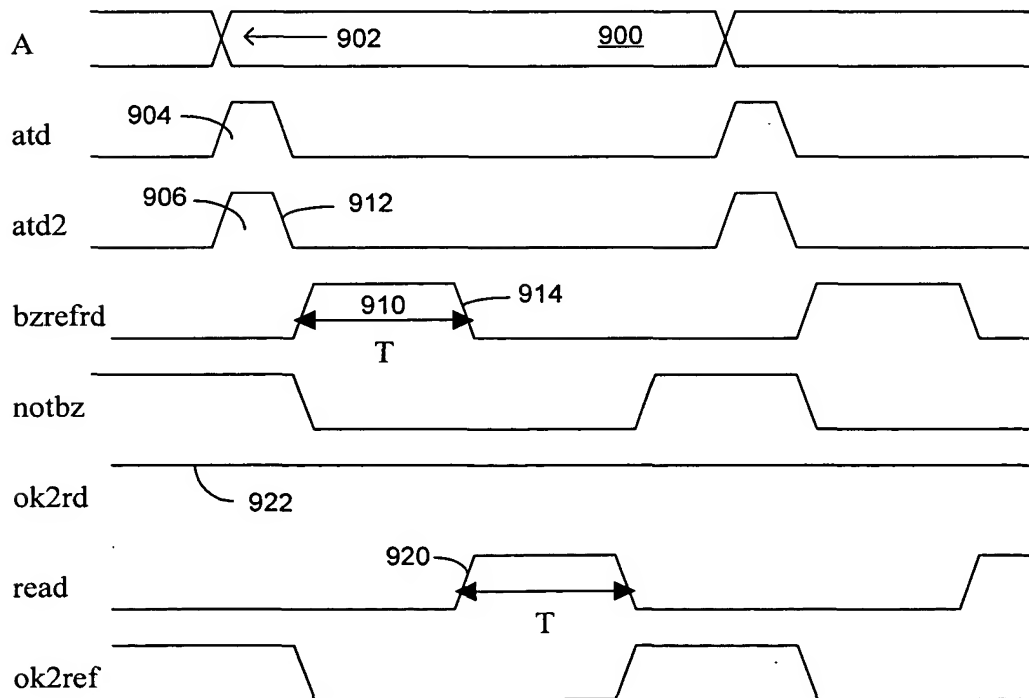


FIG. 7B



Timing diagram for a normal read access



Timing diagram for an invalid read
 operation terminated within T of starting

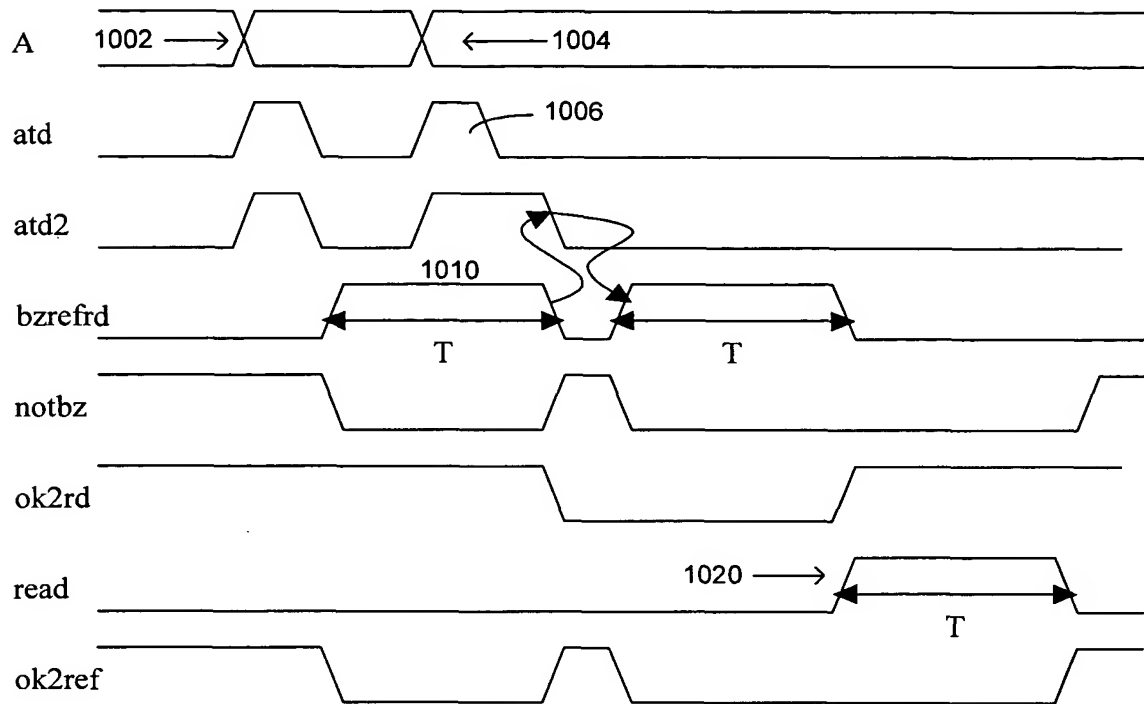


FIG. 10

Timing diagram for an invalid read
 operation terminated within 2*T of starting

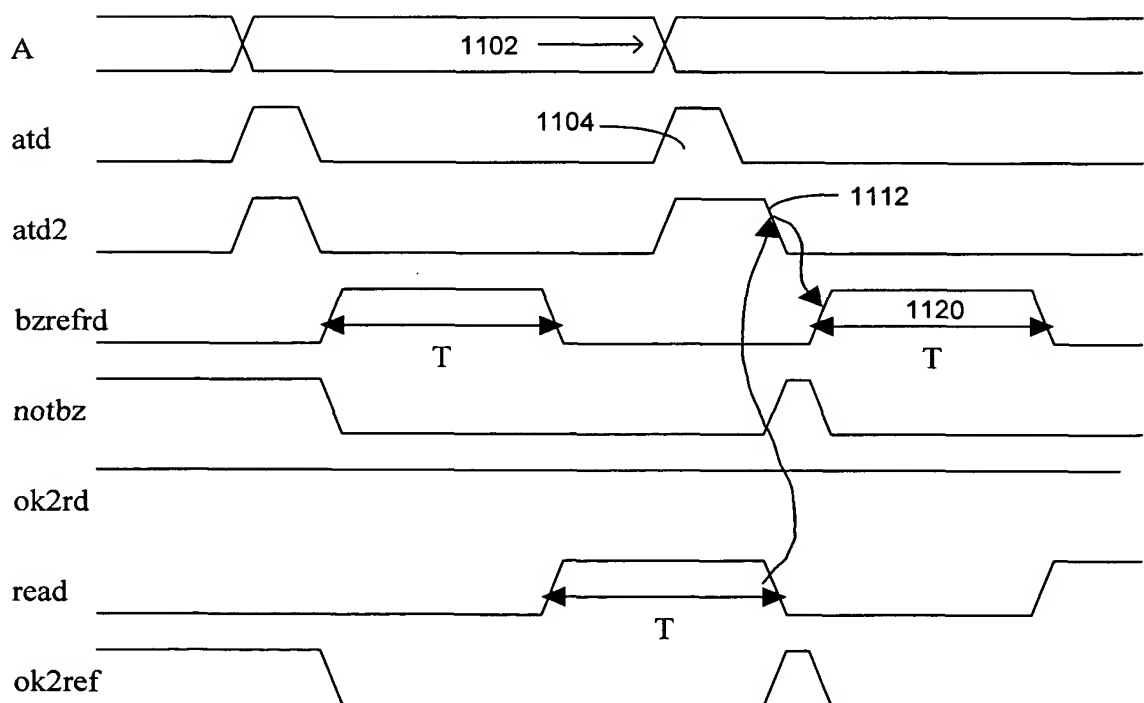


FIG. 11

Timing diagram of a write cycle

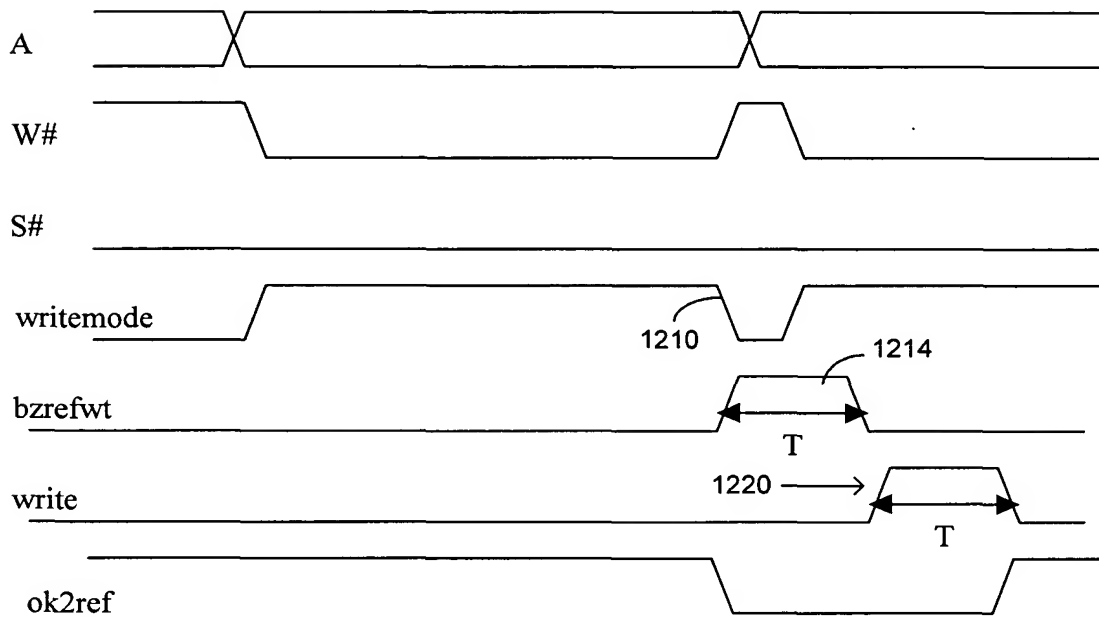


FIG. 12

Timing diagram of a write cycle
immediately followed by a read

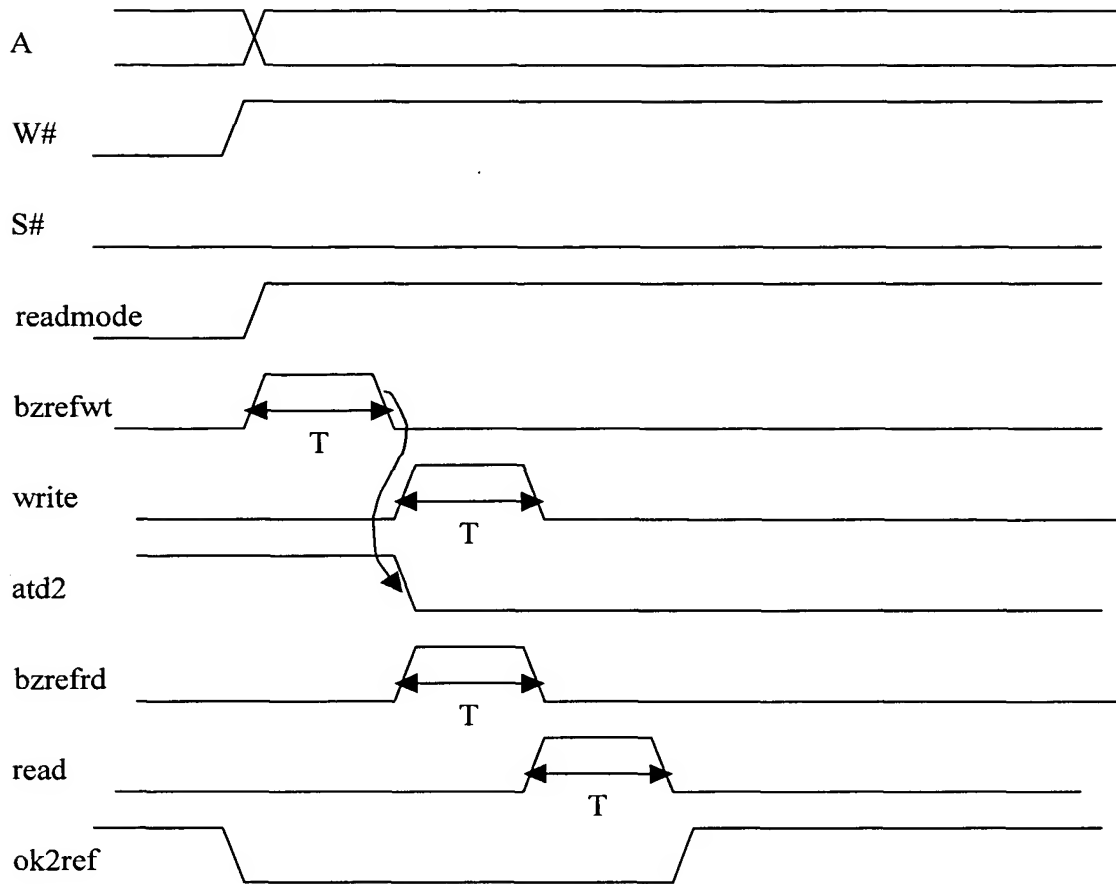


FIG. 13